

CLAIMS

1. A display device comprising a light source (6) and an array (5) of light intensity modulators (15) for modulating light from the light source (6), wherein the light source (6) is configured for operation as a single broad light source or a plurality of narrow light sources, spaced in a spacing direction, and the light source (6) and the array (5) are arranged such that each modulator (15) is significantly illuminated by only one of said narrow sources and a string of modulators (15), parallel to said spacing direction, is illuminated by each narrow light source.

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2. A display device according to claim 1, wherein the narrow light sources are elongate and aligned substantially perpendicular to the spacing direction.

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3. A display device according to claim 1 or 2, wherein the light source (6) has a light emitting face which is substantially coextensive with and plane parallel to the array (5).

4. A display device according to claim 3, wherein the array (5) comprises an array of pixels (15) of a liquid crystal display (5).

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5. A display device according to claim 3, wherein the light source (6) comprises an organic light emitting diode structure.

6. A display device according to claim 5, wherein the light source comprises alternating thick and thin parallel control electrodes (11a, 11b; 11a', 11a'', 11b', 11b'') which are themselves independently controllable.

5 7. A display device according to claim 6, wherein said electrodes (11a', 11a'', 11b', 11b'') are arranged in a two-dimensional grid having a plurality of rows and columns.

8. A display device according to claim 5, wherein the light source
10 comprises thin, side-by-side, parallel, independently controllable control electrodes (11b_{1..6}, 11b'_{1..6}).

9. A display device according to claim 6, 7 or 8, wherein the pixels
(15) of the liquid crystal display (5) are arranged in rows and columns and the
15 control electrodes (11a, 11b) are skewed relative to said pixel columns.

10. A display device according to any preceding claim, wherein the
light source (6) comprises a two-dimensional array of independently
controllable light emitting regions (12R, 12G, 12B) and a control circuit (16)
20 configured for controlling said regions (12R, 12G, 12B) in dependence on data
representing an image to be displayed.

11. A display device according to claim 10, wherein said regions
(12R, 12G, 12B) emit different coloured light.

12. A display device according to claim 11, wherein said regions form a repeating pattern of red, green and blue emitters (12R, 12G, 12B).

13. A display device according to claim 10, 11 or 12, wherein the
5 control circuit (16) is configured for controlling the intensity of the light emitted by said regions (12R, 12G, 12B) in dependence on data representing the local brightness of the image to be displayed.

14. A display device according to any preceding claim, wherein the
10 length of each of said strings is substantially the same as the spacing between its illuminating narrow source and a neighbouring narrow source thereof.

15. A display device according to claim 8, including a control circuit (16), wherein the control circuit is configured for energising a first set (11b_{1..6})
15 of said control electrodes (11b_{1..6}, 11b'_{1..6}) to produce a 3D image and subsequently energising a second set (11b'_{1..6}) of said control electrodes (11b_{1..6}, 11b'_{1..6}) to produce 3D image.

16. A electronic apparatus including a display device according to
20 any preceding claim.